```
NLA_Method1 := | "This routine performs an iterative, nonlinear structural analysis of a steel pile embedded in an unreinforced concrete beam."
               | "1-D link elements with full length, linear tranction forces (peak at the pile face) model the 3-D connection behavior through"
               | "the PSTB."
               | "Refer to the MBeam routine above for the Cap Bending Scenario being considered."
               | for j ∈ 1..NoPileForceEvaluationPoints
               |   | Count_{1,j} ← 0
               |   | Q_Total ← matrix(DOFS, 1, f(i,j) ← 0)
               |   | Q_PileFace ← matrix(DOFS, 1, f(i,j) ← 0)
               |   | ReactionError ← 1
               |   | while ReactionError ≥ 0.001
               |   |   | Δ_Global^⟨j⟩ ← (K_GlobalComplete^(−1))·(F_Pile^⟨j⟩ + Q_PileFace)
               |   |   | P_PileFace ← K_GlobalSpringsOnly·Δ_Global^⟨j⟩ − Q_PileFace
               |   |   | for i ∈ 1..DOFS/2
               |   |   |   | Reaction_AtIdealizedBeam_{i,j} ← −P_PileFace_{2·i−1} − Q_Total_{2·i−1}
               |   |   |   | ReactionError_{i,j} ← Reaction_AtIdealizedBeam_{i,j} − P_CapFbrLeft_{i,j}  if P_PileFace_{2·i−1} ≥ 0
               |   |   |   | ReactionError_{i,j} ← Reaction_AtIdealizedBeam_{i,j} − P_CapFbrRight_{i,j}  if P_PileFace_{2·i−1} < 0
               |   |   |   | Q_TotalNew_{i,j} ← Q_Total_{2·i−1} + ReactionError_{i,j}
               |   |   |   | Q_PileFaceNew_{i,j} ← Q_PileFace_{2·i−1} + (1/3)·ReactionError_{i,j}
               |   |   | REMin ← |min(ReactionError)|
               |   |   | REMax ← max(ReactionError)
               |   |   | ReactionError ← max(REMin, REMax)
               |   |   | Q_TotalNew
               |   |   | Q_PileFaceNew
               |   |   | Q_Total ← matrix(DOFS, 1, f(i,j) ← 0)
               |   |   | Q_PileFace ← matrix(DOFS, 1, f(i,j) ← 0)
               |   |   | for i ∈ 1..DOFS/2
               |   |   |   | Q_Total_{2·i−1} ← Q_TotalNew_{i,j}
               |   |   |   | Q_PileFace_{2·i−1} ← Q_PileFaceNew_{i,j}
               |   |   | Q_Total
               |   |   | Q_PileFace
               |   |   | m ← 1..DOFS/2
               |   |   | SumMoments_{1,j} ← Σ_m [(P_PileFace_{2·m−1})·(m − 1)·(L_PE)] − F_Pile_{2,j}
               |   |   | SumShears_{1,j} ← Σ_m (P_PileFace_{2·m−1}) − F_Pile_{1,j}
               |   |   | Count_{1,j} ← Count_{1,j} + 1
               |   |   | return "Iteration Limit Exceeded" if Count_{1,j} > 1000
               | Count
               | SumMoments
               | SumShears
               | Δ_Global
               | CombinedResults ← stack(Count, SumMoments, SumShears, Δ_Global)
```